What is claimed is:

1.   An apparatus for controlling a cache storing data, said apparatus provided with key control protection using a storage key for an access to data, said apparatus comprising:

    a demand device demanding the storage key;

    a control device starting a retrieval of the data in the cache without waiting for arrival of the demanded storage key; and

    a transfer device transmitting the retrieved data.

2.   The apparatus according to claim 1, wherein the transfer device transmits the retrieved data without waiting for arrival of the demanded storage key.

3.   The apparatus according to claim 1, further comprising:

    a   translation   lookaside   buffer   device registering a correspondence relation between a logical address and a physical address; and

    an address translation device transforming the logical address into the physical address, wherein

    when a logical address of the access is not registered in the translation lookaside buffer device,

the control device demands translation of the logical address of the access from the address translation device, registers the translation result in the translation lookaside buffer device, and retrieves the translation lookaside buffer device without waiting for arrival of the demanded storage key.

4.   The apparatus according to claim 1, further comprising:

a   translation   lookaside   buffer   device registering a correspondence relation between a logical address and a physical address; and

an address translation device transforming the logical address into the physical address, wherein

when a logical address of the access is not registered in the translation lookaside buffer device, the control device demands translation of the logical address of the access from the address translation device, registers the translation result in the translation lookaside buffer device, and releases the address translation device without waiting for arrival of the demanded storage key.

5.   The apparatus according to claim 4, further comprising a plurality of key access ports   storing an

arrived storage key, wherein

the address translation device continuously transforms a plurality of logical addresses associated with a plurality of accesses, and the demand device demands a corresponding storage key each time translation completes.

6.   The apparatus according to claim 1, wherein

the control device completes an access process for an access that does not require the key control protection, without waiting for arrival of the demanded storage key.

7.   A cache control method used for a data processing device provided with key control protection using a storage key for an access to data, comprising:

searching a translation lookaside buffer for a logical address of the access;

transforming the logical address into a physical address when the logical address is not registered in the translation lookaside buffer device;

demanding the storage key;

registering a translation result of the logical address in the translation lookaside buffer;

searching the translation lookaside buffer again, without waiting for arrival of the demanded storage key;

and

transmitting data stored in a cache, corresponding to the logical address.

5   8.   An cache control device used for a data processing device provided with key control protection using a storage key for an access to data, comprising:

cache means for storing the data;

demand means for demanding the storage key;

10   control means for starting a retrieval of the data in the cache means without waiting for arrival of the demanded storage key; and

transfer means for transmitting the retrieved data.

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